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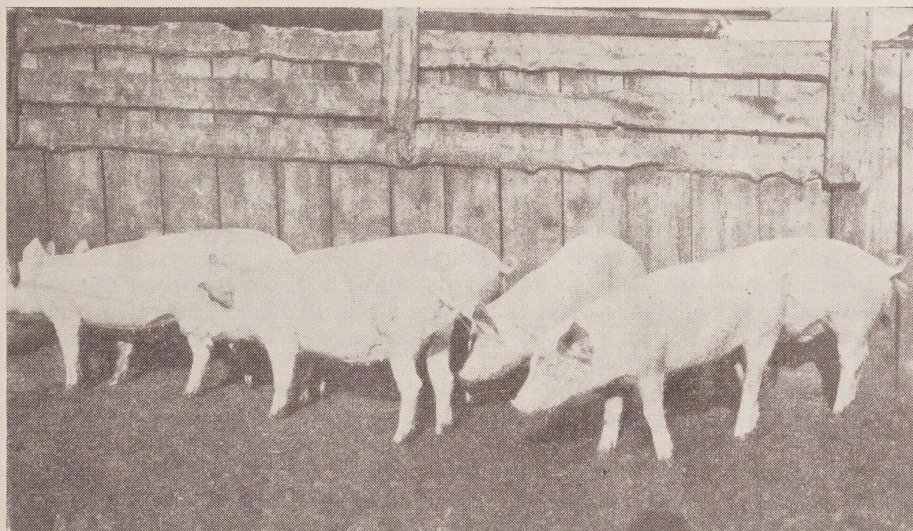
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RATIONS FOR ECONOMICAL PORK PRODUCTION

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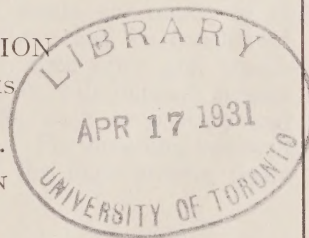


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Rations for Economical Pork Production

Of all the various problems of the swine grower, perhaps the devising of suitable rations is the most difficult. The characteristics of the grains and the general analyses of them are known in a general way, or at least are easily procurable, but the problem of combining these grains most advantageously is his unsolved mystery. It is hoped that the following treatise on management and feeding will help fill this need.

Care of the Breeding Stock

In the feeding and management of the breeding herd, which presumably consists of pregnant sows during a large part of the year, it is necessary, consistent with giving the required care, to maintain the animals just as cheaply as possible. Such economical care applies to feeding, housing and management.

Brood sows, which are left to the happy chance that they will forage for themselves and find practically all their feed, cannot be expected to produce and suckle two large healthy litters of pigs each year. The brood sow, like other animals, will respond to good treatment and should be fed regularly. The wise feeder realizes that it is to his advantage to allow his sows sufficient feed to keep them in the right breeding condition, and to include the feeds that will ensure that neither the sows nor their litters will lack any of the necessary feeding elements.

Shelters for the breeding stock need be neither expensive nor pretentious. It is quite necessary to shelter the pigs from the sun in summer, and from the worst of the winter storms. However, for the winter season, excluding the farrowing and the nursing periods, hog cabins of one-ply boards are quite sufficient shelter. The cabins should be well bedded with dry straw. Under such a system along with a nutritious ration, the sows will winter well, and be prepared to farrow and nurse a large litter of strong pigs.

The following rations for Eastern and Western Canada are made up of feeds available in those sections, and are such that they may be considered safe for breeding animals including both pregnant sows, open sows, and breeding boars. The amount of meal necessary to feed daily will depend largely on the condition of the animals, sources of other feeds, such as pasture and green feed, and in breeding boars the amount of service. For breeding boars in heavy service, it is good practice to include more of the high protein feeds such as tankage, oil meal, or skim-milk.

Breeding Stock Feed Mixtures

EASTERN CONDITIONS

Ground oats.. . . .	200 pounds
Shorts.. . . .	100 "
Bran.. . . .	50 "
Tankage.. . . .	15 "
Linseed oil meal.. . . .	10 "
Mineral mixture.. . . .	8 "
Alfalfa hay, clover hay, or roots.	

In the above mixture the tankage and linseed oil meal may be omitted if there is a plentiful supply of skim-milk. However, it is essential in the above and succeeding feed mixtures that sufficient of one or another of the protein

containing feeds such as skim-milk, tankage, or linseed oil meal be included. These high protein feeds promote growth in the young pigs, and are also necessary in smaller proportions for the proper maintenance of mature animals.

WESTERN CONDITIONS

Ground oats.. . . .	300 pounds	Ground oats.. . . .	300 pounds
Ground barley	100 "	Ground barley	200 "
Ground wheat.	100 "	Mineral mixture, self fed.	
Mineral mixture, self fed.		Alfalfa hay, clover hay, green oat	
Alfalfa hay, clover hay, green oat		sheaves, or roots.	
sheaves, or roots.			

Pregnant sows nearing farrowing should also receive in addition to the above, a small amount of bran and either skim-milk or tankage.

The Nursing Sow

As soon as the sow has completed farrowing and seems anxious for feed, she should be given a warm slop containing such feeds as skim-milk, bran and oats. The slop should be thin and should be fed in a limited quantity. At the next regular meal time, the nursing ration can be used, although naturally the amount fed at first should be small. However, within the course of a few days after farrowing, the sow can be on full feed and with a normal litter should be given all that she will clean up. Since the nursing period is a heavy drain on the body of the sow, she must be fed liberally in order to maintain her own condition and also supply sufficient milk for the proper nourishment of her litter.

Milk is a very necessary part of the nursing sow's ration. Of the various forms of milk, skim-milk is one of the best for nursing sows. More important, however, than the kind of milk used is the feeding of it always in the same state of acidity. This applies to pigs of all ages, but especially to the nursing sow since a very small change in the ration of the sow will be sufficient to set up digestive disturbances in the suckling pigs. Pigs of this age seem to thrive best when the milk is sweet and so fresh skim-milk is the preferable feed. Butter-milk, although an ideal feed for growing pigs, is not desirable for nursing sows and litters, since it has a tendency to cause digestive disorders. Although the milk by-products are always recommended for the optimum development of young pigs, nevertheless they are not essential and other high protein feeds mentioned heretofore may be substituted with practically equal results. Tankage, fish meal and linseed oil meal, either mixed or singly, will supply the protein necessary in the ration and should supplement the meal ration at the rate of approximately five per cent.

Nursing Sow Rations

The following mixtures for nursing sows have proven suitable for conditions such as prevail in Eastern and Western Canada:—

EASTERN CANADA

Bran.. . . .	100 pounds
Shorts.. . . .	200 "
Ground oats.. . . .	200 "
Ground barley.. . . .	100 "
Linseed oil meal.. . . .	20 "
Tankage.. . . .	20 "
Mineral mixture.. . . .	12 "
Skim-milk, hand-fed.	
If sufficient skim-milk, omit linseed oil meal and tankage.	

WESTERN CANADA

Bran	50 pounds	Bran	50 pounds
Shorts	50 "	Ground oats	300 "
Ground oats	300 "	Ground wheat	200 "
Ground barley	100 "	Tankage or skim-milk	30 "
Ground wheat	100 "	Mineral mixture, self-fed.	
Tankage or skim-milk	30 "		
Mineral mixture, self-fed.			

Weaning of Litter

In preparation for the time when it will be necessary to wean the litter, the little pigs should be encouraged to eat along with their dam out of the feed trough. A better method, however, is to provide separate feed in a creep to which the sow cannot gain access, but with an entrance just large enough to admit the little pigs. Feed suitable for the young pigs should be provided in the creep, a good mixture being a half and half combination of middlings and finely ground oats, from which the hulls have been sifted. The young pigs will start to nibble at the feed at about two to four weeks of age, and by the sixth or seventh week should be eating quite freely. Under such procedure the pigs will not feel as great a shock when weaning does occur, and in fact will be almost weaned naturally by the sow.

When two litters a year are desired, the suckling period must of necessity be somewhat shortened. Under the two-litter system the pigs should be weaned at the sixth or seventh week. If, however, only one litter a year, or three litters in two years are desired, then the suckling period can be prolonged to eight or nine weeks. The sow's feed should be cut down considerably at weaning and should be kept as a maintenance diet until milk secretion has stopped, thus reducing danger of udder trouble to a minimum. After light feeding for a week or ten days, the sow's ration may be increased in order to prepare her for the succeeding litter.

Growing and Fattening Rations

In making up feed mixtures, it is always important to determine available supply and the prices of the various feeds, which would be suitable for pigs of the age being fed. From time to time feeds differ in relative price, and so one or another feed may be used more advantageously in compounding a mixture. The following mixtures have been used successfully, and are considered suitable for present conditions. Nevertheless, in certain sections prices may be divergent enough to warrant a change in the proportions of the mixtures.

EASTERN RATIONS

<i>Weanling pig mixture</i>		<i>Growing pig mixture</i>	
Ground barley	50 pounds	Ground barley	150 pounds
Ground oats	250 "	Ground oats	200 "
Middlings	100 "	Middlings	50 "
Shorts	100 "	Shorts	100 "
Mineral mixture	10 "	Mineral mixture	10 "
Skim-milk or buttermilk, 3 pounds to each pound of meal.		Skim-milk or buttermilk, 2 pounds to each pound of meal.	
If no milk replace with 9 per cent tankage.		If no milk replace with 7 per cent tankage.	

Fattening pig mixture

Ground barley	250 pounds
Ground oats	150 "
Shorts	100 "
Mineral mixture	10 "
Skim-milk or buttermilk, 1½ pounds to each pound meal.	
If no milk, replace with 5 per cent tankage.	

WESTERN RATIONS

<i>Weaning up to 80 pounds</i>		<i>Growing pigs—80 to 120 pounds</i>	
Ground oats	200 pounds	Ground oats	100 pounds
Ground barley*	100 "	Ground barley*	200 "
Middlings or shorts..	100 "	Middlings or shorts..	100 "
Bone meal.	8 "	Bone meal.	8 "
Mineral mixture, self-fed.		Mineral mixture, self-fed.	
Skim-milk or buttermilk, 3 pounds to each pound of meal.		Skim-milk or buttermilk, 2 pounds to each pound of meal.	
If no milk, replace with 9 per cent tankage.		If no milk, replace with 7 per cent tankage.	

* Ground wheat may replace one-half the barley in these mixtures.

Finishing Mixtures

Ground oats	100 pounds	Ground oats	100 pounds
Ground barley. . . .	300 "	Ground barley. . . .	150 "
Tankage	24 "	Ground wheat. . . .	150 "
Mineral mixture, self-fed.		Tankage	24 "
		Mineral mixture, self-fed.	

Skim-milk or buttermilk may be substituted for tankage in the above rations, $1\frac{1}{2}$ pounds to each pound of meal.

Numerous tests have proven that young pigs cannot handle very much fibre. In both the Eastern and Western mixtures, it is therefore, advisable when the pigs are under 80 pounds in weight to sift the hulls out of the meal mixture and thus reduce the fibre content of the ration. Dehulled oats or oat groats, since they do not have a hull, are low in fibre and therefore, make an ideal feed to replace the oats in the weaning mixtures. Wheat has been used to a limited extent in compounding the above grain mixtures. However, it might be used in larger amounts in both the eastern and western rations, and would be substituted for part or all of the barley when its market value would warrant its use as a swine feed. It will be noted that the Western Rations contain a good percentage of coarse grains and thus utilize cheap home-grown feeds as far as possible.

Balancing of Home-Grown Western Grains

In times of money scarcity and low-priced feed stuffs, the western farmer finds it necessary to use the available grains to best advantage and combine them to form palatable and nutritious mixtures. The problem resolves itself into: "How can the barley, wheat, and oats now on hand be most advantageously fed without the addition of other bought feeds such as protein supplements and wheat by-products?"

It is not recommended that the western coarse grains be used without the addition of a protein supplement. However, of the high protein feeds, milk by-products are the only ones likely to be available and even these in limited quantities. Thus, although being far from balanced rations and certainly not to be recommended as good feeding practice, the following grain mixtures are suggested as combining to best advantage the feeds likely to be available on the grain farms of the Prairie Provinces:—

<i>Breeding Stock Mixture</i>		<i>Nursing Sow Mixture</i>	
Ground oats	300 pounds	Ground oats	300 pounds
Ground barley	100 "	Ground barley. . . .	50 "
Ground wheat	100 "	Ground wheat	200 "
<i>Growing Pig Mixture</i>		<i>Fattening Pig Mixture</i>	
Ground oats	300 pounds	Ground oats. . . .	100 pounds
Ground barley..50 to	100 "	Ground barley	200 "
Ground wheat	100 "	Ground wheat	100 "

Winter Feeding of Fall Pigs

Winter feeding of market pigs requires a specialized procedure since pastures are not available, and the pigs must be reared entirely without this form of exercise and green feed. Thus the winter ration must be supplemented so that these deficiencies will be made up. Succulence in the form of well cured alfalfa or clover hay should be fed to pigs of over 100 pounds, while pigs under this weight should receive milk, roots, or even a small amount of the above mentioned hay. Do not try to make hay or roots the sole feed for winter fed hogs. In fact, it is not always even advisable to use hay under the self-feeding system where the pigs can eat all they desire. Rather, hay of extra good quality should be fed in limited amounts and thus be used only as succulence, the pigs deriving the large part of their nutriment from a mixture of coarse grains.

Mineral mixtures are more important in winter feeding than during the summer when the pigs have access to the earth through the use of pastures. A self-feeder with a constant supply of mixed minerals is well worth while. There will be further discussion of simple mineral mixtures. Another good supplement to winter feeding is the regular use of sods. From the way pigs work over a sod thrown to them there is evidently considerable mineral nutriment gained from this source.

Feeding of Salt and Iodine

In the foregoing feed mixtures for pigs of various ages, salt was merely included as part of the mineral mixture. Nevertheless, salt is a very necessary constituent of the swine ration and pays its actual cost many times over.

There are iodine deficient districts where goitre in calves and lambs and hairlessness in pigs are prevalent. In such districts the use of potassium iodide in the form of iodized salt is advised. Commercial iodized salt can be procured, or if it is desired to mix it at home the procedure is simple. Spread out one hundred pounds of dry common salt evenly on a clean floor, and after dissolving two ounces of potassium iodide in sufficient water, sprinkle the liquid evenly over the salt. After drying, mix thoroughly and then use in the same way as ordinary common salt. A good rule in feeding salt to swine is to feed one-half pound per pig per month, varying this according to the size and age of the pigs.

Mineral Mixture

So much has been written concerning the feeding of minerals that some mention of it would be in order. There are some rations which contain such an amount of mineral rich feeds that additional supplementation with organic or inorganic minerals would hardly seem warranted. This is especially the case where the pigs have access to the earth or are fed a ration containing tankage. Other rations are so deficient in minerals that the addition of a mineral mixture would certainly enhance their feeding value. The following mixtures have been used successfully, and as indicated above, will be found of most value during the winter months when other forms of mineral matter are inaccessible. These mixtures would also be valuable for breeding stock and pregnant and nursing sows.

Eastern Mineral Mixture

Bone meal or bone char..	25 pounds
Ground limestone..	50 "
Salt..	25 "

This can be used in self-feeder, or by mixing in meal ration at the rate of 1 to 2 per cent.

Western Mineral Mixture

Slacked coal..	76 pounds
Salt..	20 "
Air slacked lime or ground limestone..	3 "
Sulphur..	1 "

Use in self-feeder, giving the pigs free access to the mixture at all times.

Housing

Expensive buildings are quite unnecessary to produce healthy litters, or to grow market hogs. Where the climate is not too damp, hog cabins of one-ply boards can be used a large part of the year. These hog cabins are constructed with hinged sides so that additional shade will be provided during the summer months. Brood sows and feeder pigs winter well in hog cabins. On the prairies additional protection is secured by straw banking the cabins.

Except in a very dry climate, it is necessary to have the sow farrow her early litter in a warmer building, and then move the pig families to separate cabins, or other cheap shelters, several weeks later. The hog cabin provides a suitable means of housing pigs on pasture and since it is easily moved facilitates the rotation of pastures from year to year. The combating of internal parasites is helped immensely by such a rotation. Information on the construction of the hog cabin can be procured from the Central Experimental Farm, Ottawa, Ont.